PB-241 178

PRELIMINARY EVALUATION OF COMPLIANCE STATUS OF GRAIN ELEVATORS IN REGION V

PEDCo-Environmental
Cincinnati, Ohio

July 1974

DISTRIBUTED BY:

NTIS
National Technical Information Service
U. S. DEPARTMENT OF COMMERCE

BIBLIOGRAPHIC DATA SHEET	1. Report No.	2.	PB 241 178

4. Title and Subtitle
Preliminary evaluation of compliance status of grain elevators in Region V.

5. Report Date
July 1974

6.

7. Author(s)

8. Performing Organization Rept. No.

9. Performing Organization Name and Address
PEDCo-Environmental Specialists, Inc., Suite 13, Atkinson Square, Cincinnati, Ohio 45246

10. Project/Task/Work Unit No.

11. Contract/Grant No.
68-02-1355

12. Sponsoring Organization Name and Address
Environmental Protection Agency, Region V, Enforcement Division, Chicago, Illinois 60606

13. Type of Report & Period Covered

14.

15. Supplementary Notes

16. Abstracts
The purpose of this project was to gather sufficient information on 38 Minnesota grain elevators to determine whether they are in compliance with the state's air pollution control regulations. A background document on the grain industry was prepared. Questionnaires were designed and transmitted to the industry where additional information over that in the Regional Office's files was required. 114 replies were received and reviewed.

17. Key Words and Document Analysis. 17a. Descriptors

grain industry
air pollution

17b. Identifiers/Open-Ended Terms

17c. COSATI Field/Group

Reproduced by
NATIONAL TECHNICAL INFORMATION SERVICE
U.S. Department of Commerce
Springfield, VA 22151

PRICES SUBJECT TO CHANGE

18. Availability Statement	19. Security Class (This Report)	21. No. of Pages
Available from NTIS	UNCLASSIFIED	13
	20. Security Class (This Page) UNCLASSIFIED	22. Price $3.25/2.25

PEDCo-ENVIRONMENTAL
SUITE 13 · ATKINSON SQUARE
CINCINNATI, OHIO 45246
513/771-4330

PRELIMINARY EVALUATION OF COMPLIANCE STATUS OF GRAIN ELEVATORS IN REGION V

Prepared by

PEDCo-Environmental Specialists, Inc.
Suite 13, Atkinson Square
Cincinnati, Ohio 45246

Contract No. 68-02-1355
Task Order No. 7

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region V
Enforcement Division
Chicago, Illinois 60606

July, 1974

This report was furnished to the Environmental Protection Agency by PEDCo-Environmental Specialists, Inc., Cincinnati, Ohio, in fulfillment of Contract No. 68-02-1355, Task Order No. 7. The contents of this report are reproduced herein as received from the contractor. The opinions, findings, and conclusions expressed are those of the author and not necessarily those of the Environmental Protection Agency. Mention of company or product names is not to be considered as an endorsement by the Environmental Protection Agency.

ACKNOWLEDGMENT

This report was prepared for the U.S. Environmental Protection Agency by PEDCo-Environmental Specialists, Inc., Cincinnati, Ohio, under contract to the U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Mr. Donald J. Henz, P.E. was the PEDCo Project Manager.

Mr. Lance Vinson was the Project Officer for the Environmental Protection Agency.

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this project was to gather sufficient information on 38 Minnesota grain elevators, selected by U.S. Environmental Protection Agency, to determine whether they are in compliance with the state's air pollution control regulations. This was done as follows:

1) PEDCo reviewed Regional Office files, determined whether emission information was sufficient.
2) Where information was not sufficient, the Regional Office sent 114 reports.[a]
3) PEDCo reviewed Regional Office files and 114 replies and determined whether sufficient information was supplied to determine compliance.
4) Where information was not sufficient, PEDCo contacted the sources by telephone.

---

a) 114 reports are requests for air pollutant emission information as authorized by Section 114 of the Clean Air Act.

2.0 PROCEDURE

2.1 INDUSTRY DESCRIPTION

A brief background document on the feed and grain industry was prepared to assist in the compliance evaluations. This report, entitled "The Storage and Handling of Grain", explained operation and characteristics of both country elevators and terminal elevators, and the various processes present at both types of elevators. These processes included: grain unloading, grain loading, grain drying, grain cleaning, garner and scale bins, elevator legs, and transfer points. It also defined the emissions from each source, possible control devices, such as inertial separators, fabric filters, high velocity filters and screen filters, and application of these control devices to the various elevator operations. Typical control system costs were also discussed.

2.2 REVIEW REGULATIONS

The Minnesota Air Pollution Control Rules and Regulations were reviewed and a list prepared of applicable regulations. This provided a convenient record and interpretation of the appropriate regulations for uniform application.

2.3 REVISE QUESTIONNAIRE

Air Pollutant Emissions Report (APER) questionnaires were used in the request for information. In reviewing the available

APER form for grain handling and processing, it was found to be a good outline for an emission inventory, but rather lengthy to fulfill the purpose of this project. The form was thus redesigned and shortened by eliminating items not essential to the determination of compliance status. The resulting form is shown in Appendix A to this report.

2.4 GATHER DATA

PEDCo reviewed Regional Office files to determine whether emission information was sufficient. Only one plant file had sufficient information to determine compliance. Where information was not sufficient, 114 reports were prepared to obtain emission information. PEDCo provided the typing of these reports. Included as a part of the 114 reports were the APER questionnaires. These reports were prepared and sent to 27 plants. For three plants only partial information was needed. The Project Officer obtained this information by telephone. It was determined that seven plants had previously been sent 114 reports. A modified report requesting information which was still missing was sent to these plants. The 114 replies were reviewed to determine if they contained sufficient information to determine compliance. Where information was still deficient, PEDCo contacted the sources by telephone.

3.0 SUMMARY

In summary, for the completion of this project, the following subtasks were performed:

1) A background document on the grain industry was prepared to assist Region V attorneys.
2) The Regional Office files were reviewed and it was determined that information required to make an accurate analysis was lacking.
3) The questionnaire was designed that was used in the acquisition of data.
4) 114 reports were prepared for transmittal to the sources from which additional information was needed.
5) The 114 replies were reviewed, and the sources contacted by telephone when the 114 replies were incomplete.

APPENDIX A

AIR POLLUTANT EMISSIONS REPORT

FEED AND GRAIN INDUSTRY

AIR POLLUTANT EMISSIONS REPORT

FEED AND GRAIN INDUSTRY

I. PLANT IDENTIFICATION

A. Corporation (parent) Information

Name: _____

Address: _____

Chief Executive Officer Name: _____

Title: _____

B. Plant Information

Name: _____

Address (Plant Location): _____

_____ County: _____

Person to contact for information regarding this summary.

Name: _____

Title: _____

Telephone Number: _____

Site: Land area at plant location (in acres). Enclose a map, engineering drawing or sketch showing location of principal plant buildings with identification names, location of plant property lines, names and locations of streets nearest to plant boundaries, location of stacks or other discharge points, and distance to any public roadway or private residence nearest to each plant emission source.

Operation: Provide a block diagram showing the process flow of major plant processes, identifying the major operational steps in each process, emission points, and control units associated with each process operation. Show the maximum material flow through each processing unit, the process flow(s) to which each emission control device is applied, and the discharge points as identified on the layout drawing.

Normal Plant Operating Schedule

_____ hrs/day; _____ days/wk; _____ wks/yr.

Plant Capacities:

Total Storage Capacity: _____ bushels

Total Grain Processed: _____ bushels/yr.

for _____ (year of record)

AIR POLLUTANT EMISSIONS REPORT

FEED AND GRAIN INDUSTRY

II. PROCESS EMISSION SOURCE INFORMATION

- complete one of these forms for each operation which is exhausted to the atmosphere -

A. Description of Operation

1. Type of operation* _____

_____

2. Equipment* _____

a. Type of grains processed _____

3. Number of identical operations* _____

4. Operating hours _____hrs/day; _____days/wk; _____wks/yr.

5. Operating rates:

_____ bushels/hr X _____ lbs/bushel = _____ lbs/hr.

B. Emission Information

1. Exhaust Data

a. Means of exhaust

Stack: rectangular ☐ round ☐

dimensions _____

other* _____ area _____ft^2

flow _____ ACFM* temperature _____°F

height of exhaust discharge above ground_____ft

2. Control Equipment (Particulate)

Type* _____ Manufacturer and Model _____

Control Efficiency Design _____% Actual* _____%

Secondary Device (if applicable)

Type* _____ Manufacturer and Model _____

Control Efficiency: Design _____% Actual* _____%

3. Emission (Particulate)

Rate _____ lbs/hr. before control system

_____ lbs/hr. after control system

Concentration _____ grains/SCF after control system

Method of emission determination

☐ Stack Test include report or describe test

☐ Other (explain) _____

_____

Estimate: Show assumptions and calculations below:

*See Appendix before completing these blanks.

AIR POLLUTANT EMISSION REPORT

FEED AND GRAIN INDUSTRY

APPENDIX: PROCESS EMISSION SOURCE INFORMATION

The explanations below clarify the intent of the questionnaire items marked with an asterisk (*).

A.1. Type of Operation - indicate the type of operation (for example, boxcar unloading, grain drying, conveying).

A.2. Equipment - indicate the particular type of equipment used in the operation (for example, a grain dryer could be either a rack or column type).

A.3. Number of Identical Operations - indicate the number of these operations which are identical. (For example, there might be 10 identical grain storage bins.) Process information should be for each process. It is not necessary to complete one form for all the identical operations.

B.1.a. Other - such as a roof vent, window, etc.

Flow - actual cubic feet per minute.

B.2. Type - Cyclone, settling chamber, fabric filter, etc.

Actual - Control efficiency: by stack test or other method.